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BY

JOSEPH A. WHITE, M. D.,

RICHMOND, VIRGINIA.

Late Professor of Eye and Ear Diseases in the Washington University.

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Dr. Joseph A. White,

Late Professor of Eye and Ear Diseases in the Washington University of Baltimore.

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By JOSEPH A. WHITE, M. D., Richmond, Va.,

Late Professor of Eye and Ear Diseases in the Washington University.

(Read before the Richmond Academy of Medicine.)

In these remarks, on such a commonly prevalent trouble as otorrhœa, I may be occupying time that might be turned to more advantage: but trust you will listen patiently to a few old facts which I bring before you in a new dress, with the hope of drawing your attention more closely to a disorder which is easily prevented, or, at any rate, readily controlled in its earlier stages, before it does so much damage to the delicate apparatus of hearing.

Physicians meet with it almost daily in their rounds among their patients; yet, notwithstanding the great importance and danger of this disorder, there seems to be some misapprehension about it. It is lightly regarded, overlooked or passed by as a matter of no importance. Even where its acute form is to be expected, as a rule, no pains are taken to prevent it or cut it short. In scarlet fever, *e. g.*, when the acute ear symptoms are not so transparent that any one would recognize them, they are usually ascribed to cerebral disturbance until the discharge makes its appearance, the brain trouble disappears, and recovery follows. Of those who die, who can say how many died from the ear complication rather than the fever? I have known doctors to tell parents in scarlet fever that it was better to have a deaf than a dead child. This may be so, but I doubt if it would not be a case of *Hobson's choice.* When the discharge has lasted some time and become chronic, and the physician is requested to use his skill to stop the disease, we are often told of a careless reply, intimating that he or she would outgrow it, or of the reprehensible advice not to stop the discharge, because it might

strike in, and cause brain trouble—advice unworthy of any member of a profession which to-day traces disease and applies the remedy by clear, logical reasoning from the facts of the case.

If a nasty, disgusting discharge from the ear were in any way a salutary process, no doubt more of us would be among the happy possessors of it. But it is not only an unclean, unhealthy drain upon the system, but every one so afflicted run hourly danger to life in the acute as in the chronic form, though far more so in the latter than in the former.

Deaths from chronic otitis media purulenta have been, and are still, frequently reported; and there is no doubt that many a case which has died from this disease in its acute stage has been put down to some other disorder. Toynbee, Wilde, and many others since their day, have recorded cases of death from acute otitis media purulenta; that more have not been noted, is due probably to the want of attention to, and examination of the ear in acute inflammations of the drum, and especially where it appears in connection with exanthematous diseases. Many a death in scarlet fever, typhus fever, etc., which takes place with manifestations of cerebral complication, might have been averted if the ear had been examined and the aural trouble properly treated. We all know that chronic aural disease is one of the commonest sequelæ of scarlet fever. Why should we not, then, keep a watch over the ear and treat commencing disease there, *pari passu*, with the systemic affection? By so doing, many a case would recover that would not otherwise do so, and a large majority of those who convalesce with discharge from the ear and deafness, would get well without such an unfortunate result.

When we examine the anatomy of the ear, we can easily see how otitis media purulenta can produce meningitis, cerebral abscess, etc. A purulent inflammation of the tympanum must discharge its products either through the tympanic membrane, or into the mastoid cells, or directly into the brain. It usually bursts through the membrane, but where this is too resistant, it may pass into the mastoid cells, and through their posterior wall communicate with the brain; or it may find its way into the cerebral cavity through

the roof of the drum, which is very thin, and often has congenital fissures in it; or through the Fallopian canal, etc. The pain of acute purulent otitis is so violent, as a rule, that it seems to involve the whole side of the head and face, and even intelligent adults cannot sometimes locate it in the ear, thinking they have an attack of neuralgia. In children, therefore, pain in the head, with fever and apparent head symptoms, should lead us to examine the ear. A reddened, swollen membrane will reveal the cause of the trouble, and appropriate treatment avert the threatening meningitis. Leaving aside any immediate danger to life from acute otitis media, the common form of earache, the slight importance attached to this trouble by physicians at large gives the patient the best chances of becoming a victim of otorrhœa, with impaired hearing, and eventually great destruction of the drum membrane, granulations, polypi, caries, mastoid disease, facial paralysis, and danger of death. It may be laid down as a positive law that no one who has a chronic discharge from the ear is ever free from the danger of cerebral complication and death. And in this connection, it has been suggested by some aurists that insurance companies should either refuse the risk, or demand a higher premium for a risk on a person with this affection.

Where, as a result of chronic otorrhœa, we have caries of the petrous bone, the mode of communication with the brain is apparent. But what is the way of transmission when no caries exist? As I said above, defects frequently exist in the thin roof of the drum, and in the inner wall of the Fallopian canal, by way of which head complication may arise; also, through the posterior wall of the mastoid cells; or, by direct communication with the meatus auditorius internus through the labyrinth; and lastly, by a thrombus of the lateral sinus and internal jugular. Sir William Gull, in a report of seventy-six cases of cerebral abscess, traced twenty-eight of them to chronic tympanic disease, and other writers have reported many cases. In my own individual experience, I have only seen two cases of death from cerebral complication of chronic otorrhœa, and saw them after the head symptoms appeared. In another case (a Dispensary patient), with mastoid complication and slight delirium, I performed Wilde's

incision, gouged a hole into the mastoid, and evacuated considerable pus, with relief to the head symptoms, kept the opening patent by a plug, washed out the tympanum and mastoid cells daily for some weeks, and lost sight of my patient before he had recovered from the aural affection

I have not time to go into the minor details of these cases, but refer to them simply as evidences of my previous statements.

It sometimes happens that, with the advent of head symptoms, the external flow of the discharge ceases, and to this, in all probability, is to be attributed the popular error of thinking it dangerous to stop a discharge from the ear; and this error has been fostered by many physicians who confound cause and effect, concluding that the brain trouble was caused by the stoppage of the discharge, and overlooking the fact that the discharge ceased because it found a new outlet and caused the brain complication.

It is hardly necessary to go into the minute symptomology of acute and chronic otitis media purulenta.

The acute form is of very common occurrence. We are all familiar with the violent earaches so frequently met with, ending in discharge from the ear, which relieves the pain, as a rule; what we so often hear spoken of as a rising in the ear.

The statistics collected by Dr. Knapp show this affection to occur in aural practice in about 6 to 7 per cent. of all the diseases of the ear. But it is hardly a correct estimate, because, on account of the little importance attached to it by the profession at large, the aurist is called upon in only a comparatively small number of such cases; and this is more especially so where it occurs in connection with the exanthemata. It is more frequent among children than adults, probably because they are more exposed to its causes—notably these same exanthematous diseases.

It is caused, in my own experience, by inflammation of the naso-pharyngeal mucous membrane, by exanthematous diseases, diphtheria, mumps, eczema of ear, cold water entering the ear from bathing, or improper use of nasal douche, etc., and from vegetable fungi in the external meatus. It usually commences with a feeling of discomfort, fullness and

throbbing about the ear, which passes into acute pain of greater or less intensity. The drum-head is congested or reddened, and within a week, as a rule, assumes a sudden bulging appearance, ruptures, and pus is discharged from the tympanum. Usually, with the discharge the pain ceases; if it does not, it is because the exit for the pus is too small, or because there is mastoid or cerebral complications.

Sometimes the pain has a markedly intermittent character like malarial disorders.

The duration of the discharge which makes its appearance is varying in Knapp's cases from three days to an indefinite period—nearly one-fourth of them passing into the chronic stage. But about 80 per cent. of these cases, under appropriate treatment, recovered without impairment of hearing, and with closure of the perforation. When the discharge ceases, the perforation in the drum-head is not always closed, and the patient should still be treated in order to heal up this opening. Although, contrary to common opinion, a "hole in the drum," as it is usually called, does not necessarily entail any marked loss of hearing, there is no special advantage in having one except under certain conditions of chronic non-suppurative aural catarrh, and the endeavor should be made to heal the breach. The membrana tympani possesses great powers of repair, and although the middle layer is not regenerated when there has been great destruction of tissue, the opening closes by growth of its inner and outer layers from the edge of its perforation towards its centre.

I have seen one-third of the membrane destroyed, and the loss closed up completely by tissue, which serves very well the same purposes as the rest of the membrane, and protects the delicate structures of the drum. As long as the perforation remains open, the drum is exposed to outside influences, against which it should be protected.

As regards treatment of these acute cases, it should be such as we employ to reduce any violent inflammation. Put the patient to bed, for quiet repose helps materially to favor a rapid cure; and where the hearing, and even life, may be imperilled by the neglect of proper caution, we should impress the necessity of rest upon such adults as may be the victims, or on those in authority over children. Astringent

applications to the naso-pharyngeal mucous membrane in the form of sprays, gargles, etc., should be made use of. Inflation of the Eustachian tubes by Politzer's method of catheter should be employed; and here we should go cautiously, feeling our way, so as not to drive air too forcibly into the drum until we see how it will be borne. I have often seen the pain instantly relieved by this method alone, or with the additional help of hot water in the external meatus, without recourse to leeching. The pain in the ear, which so often accompanies acute tonsillitis, is nearly always relieved by a simple inflation of the Eustachian tubes.

If the inflation and hot water do not relieve the patient, and we find the membrana tympani reddened, from two to six or eight leeches (not over the mastoid, but over the tragus, and just under the auricle) should be applied, and the bleeding encouraged by warm flannels afterwards. When it happens that leeches are not to be had, the instillation of Majendie's solution of morphia warm into the ear, or a four-grain solution of sulphate of atropine, or both combined, often has a beneficial effect. If the pain still continues, and the inflammatory action tends to the formation of pus, the examination of the membrane will show it to be bulging outward, and it should be freely incised, generally in the inferior posterior quadrant, to give exit to the contents of the drum. Sometimes I have been obliged, in rare instances, to have recourse to warm poultices to give relief, but never do so if I can avoid it; for, as Dr. Knapp says, this is a heretical proceeding, though he has often found it of service, and it is well borne. Paracentesis of the drum membrane should only be done with good illumination from the head-mirror, and the point of the knife carefully watched—otherwise more harm than good will come of it. Where, notwithstanding an exit for pus and its flow from the external meatus, the pain continues, if we find redness and pain on pressure over the mastoid process, a vertical cut about an inch behind the attachment of the auricle, and an inch in length down to the bone, called Wilde's incision, will nearly always give relief. It is rarely necessary to perforate the bone, but if cerebral symptoms threaten, no time should be lost in doing so.

I have here given you a short and concise statement of

the *modus operandi* of handling such cases, and if these points are attended to in this complication of the exanthemata, probably many lives, and, undoubtedly, many ears, would be saved. When the pus appears, frequent and gentle syringing with hot water is necessary until all acute symptoms have subsided, and then a weak, astringent solution of zinc, nitrate of silver, etc., may be dropped into the ear several times daily after the syringing.

Those who do not recover with closure of the perforation and restoration of hearing, generally pass into the chronic form of otorrhœa, a common and often intractable affection, with a number of attendant evils in its train.

The discharge becomes offensive in character, the hearing gradually worse, granulations, polypi or caries may complicate the case, with total destruction of the drum membrane and chain of ossicles; or with inflammation of the mastoid cells and danger of cerebral disease. In fact, these cases do not fall into the hands of the aurist until the deafness, the offensiveness of the discharge, or some other more prominent symptoms than the mere running from the ear, compels a consultation. As a rule, a simple uncomplicated case of chronic otorrhœa is a very tractable disease, yielding readily to careful and repeated cleansing, the persevering application of astringents, keeping the Eustachian tube and drum free by Valsalva's or Politzer's method of inflation, and with rational treatment of the naso-pharyngeal mucous membrane.

The application of blisters to the mastoid process is a time-honored custom—more honored in the breach than in the observance. The uselessness of counter-irritation in this affection is easily appreciated when we take into consideration the location of the drum, imbedded, as it is, in the petrous bone; and, therefore, blisters have been long since discarded from aural therapeutics. They belong to the same class of empirical remedies as the common custom of piercing the lobe of the ear for sore eyes, and only makes the patient more uncomfortable than before.

Many of these cases in children are associated with chronic nasal catarrh, especially in those of a strumous type. These, and, in fact, nearly all the subjects of chronic otorrhœa, should be put on tonics and alteratives inter-

nally. Patient care and attention is nearly always rewarded by a successful termination of the affection. Occasionally, relapses will occur, ushered in by an acute attack, but the eventual result is almost a certainty.

The seemingly intractable cases are those with granulation, polypi and caries. To expect a good result here, we must repeatedly examine the ear with a good illumination, carefully destroy the granulations which spring up again and again, remove the polypi and destroy the roots, scrape away with a scoop any carious bone we can get at, and then treat the case as a simple otorrhœa. I generally remove any exuberant granulation or polypi with the polypus forceps, destroying small granulations, and touching the roots of the polypi with pure nitrate of silver fused on an aluminum rod, or with pure chromic acid on the cotton-holder. Nitric acid, chloro-acetic acid, and the galvano-cautery are also used for the same purpose. Then patient cleansing and perseverance will accomplish a good result.

Sometimes the opening in the drum-head is too small for the free evacuation of the pus; or the perforation may be quite large enough, but filled up by large granulations or polypoid formations, which prevent free flow of the purulent secretion, and it is in such cases, as well as in those with caries, that mastoid disease or cerebral complications make their appearance. Sometimes an ear, which has been discharging freely for a long time, suddenly ceases to run, and this cessation is often followed by discomfort or pain about the ear, with swimming in the head, etc. The examination may reveal a granular or polypoid mass filling up the opening in the anum head, or we may find that the edges of the opening have become attached to the opposite wall of the drum cavity, and that although inflation will not give the characteristic perforation whistle, still a drop of pus may ooze out upon the membrane from within. In the one case we must remove the foreign growth at once, and in the other, if the uncomfortable symptoms continue, we must either loosen the edges of the perforation from its adhesions, or make a new exit for the pus in the membrane.

The first case I treated in Richmond was a young man, twenty-three years old, who had had fœtid discharge from the

ear since childhood, from scarlet fever. He could hear a forty-inch watch only when pressed against the side of his head. He had suffered for some time past with great dizziness, so as to be often compelled to sit down when working, for fear of falling. From the right ear I removed on July 25th, two polypi each as large as a pea, and three smaller ones; on the 27th, I removed four more; burnt the roots with chromic acid; saw him three times a week for six weeks; gave him an astringent gargle, and a sulphate of zinc and carbolic acid lotion for his ear, to be applied three times daily, after careful syringing. From time to time I destroyed any granulations which appeared, and at the end of September, dismissed him with no signs of discharge from the ear, a clean drum membrane, with a small perforation, and hearing for the same watch twenty-four inches. Up to this time he has had no relapse. Since then, I have had about twenty cases under treatment, with varying success. All have improved; some have been dismissed cured, and the rest are still under treatment. Among these, I have seen no case of any great disease of the bone. In a few, slight caries was present. As yet, I have not met in this city with any brain or mastoid complications of this disease.

Of the forty-four cases of otorrhœa seen in my office since January, fully one half had granulations in the drum; four, had polypi; three, caries; one, necrosis of anterior wall of the drum; and two, mastoid disease.

Healing of the perforation has occurred in some cases, but most of them, though the opening became smaller, did not close. Among the cases, was one, a lady forty-eight years old, from a county of this State, who had had fœtid discharge from the ear since sixteen years of age, with occasional attacks of pain and great deafness. She could, with difficulty, distinguish the tick of a forty inch watch when pressed up against the side of her head. I removed two large polypi, and found that the drum-head was entirely destroyed, the malleus and incus gone, leaving the stapes in the oval window. After three months treatment, the discharge ceased, the mucous lining of the drum became apparently normal, and the hearing for both voice and watch very good, showing that even a total absence of the drum-head with part of the

chain of ossicles, does not necessarily imply deafness. In some cases, with large perforation after the discharge ceased, the insertion of a small wet pellet of cotton in contact with the remnants of the membrane, improved the hearing by acting as a conductor of sound, and helped to protect the exposed drum cavity from atmospheric changes. This is the way the artificial drum-head acts, but the cotton takes the place very well. In reference to artificial drums, I often meet with patients who have expended their money for patent drums, which are guaranteed to restore the hearing, without knowing whether they are appropriate subjects for such an aid or not. Most frequently they are cases of non-suppurative chronic aural catarrh, with intact, thickened and depressed membrane, where no artificial drum can be of service.

These, however, are only a very small number of those who are daily victimized by quack nostrums for aural diseases, and not only spend money uselessly, but are more injured than benefitted by the remedies they buy and the pretended aurists they apply to. A more general knowledge of ear troubles among the profession at large would go far towards protecting their patients against this improper tampering with such an important organ, and conduce to more rational treatment of its diseases.